

IN THE CLAIMS

1. (currently amended) A method for dew point measurement, comprising the steps of:
providing a condensation surface on a dielectric plate;

feeding a gas to be studied onto a cooled element with a condensation surface to form
a condensate film on the condensation surface onto which a light flux is incident; ~~and~~

measuring the dew ~~due~~ point from a value of reflection of the light flux from the
condensation surface,

~~characterized in that~~ polarizing the light flux ~~is polarized~~ in a plane of ~~the~~ incidence,
and

selecting an angle of ~~the~~ incidence ~~is selected~~ so that there is no reflection of the light
flux in the absence of the condensate film on a condensate ~~from the condensation surface, the~~
~~condensation surface being made of a dielectric;~~

measuring a phase difference between beams reflected from the condensation surface
of the cooled element and from the surface of the condensate film;

determining a thickness h of the condensate film on the condensation surface of the
cooled element;

determining a concentration of condensed admixtures in a predetermined volume of
the gas on the basis of the value of the thickness of the film formed during a certain period of
time.

2. (canceled)

3. (previously presented) In a device for dew point measurement, comprising a housing equipped with a sampling tube, the housing containing a cooled element provided with a condensation surface and connected through an optical element to a radiator, the housing further containing a register, cooler and temperature sensor, the improvements wherein

the cooled element has a condensation surface dielectric plate,

the radiator is a source of light polarized in a plane of incidence on the condensation surface at an angle about equal to the Bruster angle of the condensation surface, and

the register includes means for determining a value from which the following may be calculated:

(a) a phase difference between beams reflected from the condensation surface of the cooled element and from the surface of the condensate film;

(b) a thickness h of the condensate film on the condensation surface of the cooled element; and

(c) a concentration of condensed admixtures in a predetermined volume of the gas on the basis of the value of the thickness of the film formed during a certain period of time.

4. (currently amended) The device according to claim 3, ~~characterized in that~~ wherein the angle is within the range of $\pm 9^\circ$ of the Bruster angle.

5. (currently amended) The device according to claim 3, ~~characterized in that it is provided with~~ further comprising at least one additional register ~~serving for~~ measuring ~~measurement of scattered beams reflected from the~~ a surface of the formed a condensate film

which may be formed on the condensation surface.

6. (currently amended) The device according to claim 3, ~~characterized in that~~ wherein the cooler and temperature sensor are mounted on the ~~the~~ sampling tube.

7. (previously presented) A method for dew point measurement, comprising feeding gas to be studied onto a cooled element with a condensation surface onto which a light flux is directed and registering the value of the light flux reflected from the condensation surface, advent of the dew point being determined on the basis of the registered value, wherein a light flux polarized in a plane of its incidence is used, and the angle at which it is directed onto the condensation surface of the cooled element is selected so that there is no reflection of the light flux in the absence of a condensate from the condensation surface of the cooled element, which is made of a dielectric, characterized in that the phase difference between beams reflected from the condensation surface of the cooled element and from the surface of a condensate film is additionally measured, thickness h of the condensate film on the condensation surface of the cooled element is determined, and the concentration of condensed admixtures in a predetermined volume of the studied gas is determined on the basis of the value of the thickness of the film formed during a certain period of time.

8. (currently amended) A device for measuring a dew point of a gas measurement, comprising

a housing equipped with a sampling tube, the housing containing a cooled element provided with a condensation surface and connected through an optical element to a radiator,

~~the housing further containing a register, cooler and temperature sensor, characterized in that~~
~~the cooled element provided with a~~ wherein the condensation surface is provided on ~~made in~~
~~the form of~~ a dielectric plate on which a condensate film may be formed, the radiator ~~=in the~~
~~form of being~~ a source of light polarized in the plane of incidence thereof, wherein the optical
element is positioned ~~in such a manner~~ that the light flux of the source of polarized light is
directed onto the condensation surface of the cooled element, preferably at an angle within
the range of $\pm 9^\circ$ of the value of the Bruster angle,

the housing further containing a register is made capable to measure a ~~the phase~~
difference between beams reflected from the condensation surface of the cooled element and
from ~~the a~~ surface of a the condensate film from which the following may be calculated:

(a) a thickness h of the condensate film; and

(b) a concentration of condensed admixtures in a predetermined volume of a gas on
the basis of the value of the thickness of the film formed during a certain period of time.

9. (currently amended) The device according to claim 8, ~~characterized in that it is~~
~~provided with~~ further comprising at least one additional register ~~serving for measurement of~~
measuring scattered beams reflected from the surface of the ~~formed~~ condensate film.

10. (currently amended) The device according to claim 8, ~~characterized in that~~ wherein
the housing is equipped with a cooler and a temperature sensor, which are mounted on the
sampling tube thereof.